APPENDIX 4-A

STORAGE OF FERROCHROMIUM - LOW CARBON

1. *Description*

a. Low carbon ferrochromium is a metallic material with a shiny appearance in the form of lumps, crushed pieces, bricks, briquettes, or pellets. It may be received in any of the following grades, all of which shall be a minimum of 65 percent chromium by weight:

Carbon Content	0.000 to 0.025 percent
Carbon Content	0.026 to 0.050 percent
Carbon Content	0.051 to 0.100 percent

b. When acquired, ferrochromium (low carbon) shall meet Purchase Specification P-11b (Current Edition).

2. *Packaging*

a. Low carbon ferrochromium in lump form, containing 0.050 per cent or less carbon, and all briquettes and pellets, will be received for storage in 16-gauge steel drums, 55-gallon size, hot-dipped galvanized or painted after fabrication, conforming to the requirements of National Stockpile Container Specification C-l (latest revision), which may weigh up to 1,800 pounds.

b. Low carbon ferrochromium with a carbon content range from 0.051 to 0.100 percent will generally be received for storage in bulk.

3. *Marking*

a. *Bulk Material*.

(1) Two metal embossed pile signs with the pile number, material name, country of origin and major elements as specified by the DNSC-OL shall be placed at each end of the pile.

(2) Drums are to be identified with three metal tag's. One tag attached to the outside of the lid, one on the inside of the lid, and one attached to the drum side. Information on the tags will be as instructed on the purchase contract and purchase specification.

4. *Storage*

a. Low carbon ferrochromium in other than approved type galvanized steel drums shall be stored in a warehouse, shed, or other structure so as to protect the containers from the weather. Material received in hot-dipped galvanized drums conforming to National Stockpile Container Specification C-1 (latest revision) may be stored in the open on concrete runners or blocks when specifically authorized by the DNSC-OL.

APPENDIX 4-A

STORAGE OF FERROCHROMIUM - LOW CARBON

b. In every case, storage identity of packaged material (drums or pelletized bricks) shall be maintained by contract number and supplier's lot number as indicated on each drum, identification tag, and in shipping documents.

c. When drummed material is to be stored in a warehouse, shed, or other structure, all drums shall be stored on pallets.

d. When material in galvanized drums is designated for storage in the open, drums shall be stored on their side and stacked in cordwood fashion on concrete runners or blocks. The space utilized shall be equivalent to Type B or better, as described in Chapter 4, and be capable of sustaining a load of not less than 2,000 pounds per square foot. Drum storage areas should be laid out with emphasis on maximum occupancy since no rotation handling is expected. When stored in the open, the joint of the locking ring that holds the head on the drum should always be at the bottom. Storage aids to keep drums stable shall be of concrete. Use of cinder block for this purpose is prohibited.

e. Maximum stacking height of drums stored in the open space will be three drums, and maximum width of a storage block will be four drums, unless otherwise directed by the DNSC-OL. Inspection aisles of not more than three feet shall be provided between storage blocks. Each lot should be stored so that it is readily accessible for outshipment. Lots may be stored in adjacent rows, within the block, and a row may contain parts of two lots provided each lot is readily accessible by use of overhead handling equipment. Main transportation aisles will be wide enough to permit efficient operation of local material handling equipment.

f. Whether stored in a warehouse, shed, etc., or in the open, the drums shall be stored in uniform rows and tiers so as to facilitate the taking of an inventory at any time by counting the rows and tiers and computing the total quantity. In doing this, however, economical use of space must be given full consideration and all segregation requirements must be met. When pallets are used, a uniform number of drums shall be placed on each pallet, except when an odd number on the top pallet of a stack of uniform height will complete the lot.

g. Bricks of low carbon ferrochromium are strapped unit loads and shall be stored on flat pallets in a warehouse or other structure to protect them from the weather. Marking for identity purposes in storage shall be maintained in a similar manner to that covered in paragraph 3.a.(2).

h. Each depot will maintain a locator or plot map system covering drummed material and/or pelletized bricks in storage. The system utilized should be so developed that ready identification can be made at any time, as indicated herein (paragraph 4.b.) for maintenance of identity in storage.

i. Low carbon ferrochromium with a carbon content of 0.051 percent or more, received in bulk, shall be stored in the open on a well drained improved area (concrete) equivalent to Type D, as described in Section 4 of this Manual. Piles of this material should not be established adjacent to storage piles of coke or coal nor in carbon producing areas or atmospheres.

APPENDIX 4-A

STORAGE OF FERROCHROMIUM - LOW CARBON

j. Low carbon ferrochromium received in bulk will be segregated into piles at which time pile numbers will be assigned as required. Segregation instructions will take into account the physical and chemical standards of National Stockpile Specification P-11a, in effect at time of acquisition.

k. In laying out the storage area, location of piles shall be designed so that finished piles shall be at least five feet from toe to toe, properly bulkheaded to indicate separation of piles, piles of unlike commodities shall be separated by 25 feet, toe to toe. All piles shall be so designed as to be accessible for outloading.

1. Some piles of ferrochromium may presently be protected from airborne contamination by covers of cement grout or plastics and asphalt. These covers are to remain in place until they are no longer useful for this purpose. When deterioration of the covers is indicated, the DNSC-OL shall be notified so that a determination may be made as to whether the covering is to be repaired or removed.

6. *Precautions To Be Taken*

a. *Health*. If loose metal must be handled, dust should be minimized and respirators and gloves worn.

b. *General*.

(1) Rough handling may cause extensive damage to the galvanized coating on drums. When discovered, all abrasions and/or scratches shall be coated with a zinc base paint prior to placement of drums into permanent storage. Proper care should be exercised in handling drums in order to prevent damage. Upon receipt, drums should be carefully checked for abrasions and to insure the lids are securely fastened.

(2) In selecting an area for the storage of low carbon ferrochromium in bulk, care shall be exercised to insure that the area selected is not in proximity to industrial sites, or coal piles. Contamination during the process of receipt or outshipment is to be prevented.

7. *Average Storage Factor*

a. Low Carbon (in drums): 2.5 square feet per short ton.

FOR ADDITIONAL INFORMATION ON THIS COMMODITY REFER TO THE MATERIAL SAFETY DATA SHEET OR THE MOST RECENT PURCHASE SPECIFICATION.